

Aqueous coating material and modular system for its preparation

5 Patent claims:

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1. An aqueous coating material preparable by mixing with one another

10 (A1) at least one substantially water-free color- and/or effect-imparting base color comprising

15 (a11) at least one optionally water-soluble or dispersible binder,

(a12) at least one color and/or effect pigment, and

20 (a13) at least one optionally water-miscible organic solvent and also, if desired, comprising

(a14) at least one crosslinking agent and/or

25 (a15) at least one auxiliary and/or additive (coatings additive);

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(A2) at least one aqueous color-imparting base color comprising

5 (a21) at least one water-soluble or -dispersible binder,

(a22) at least one color pigment, and

(a23) water, and also, if desired, comprising

10 (a24) at least one optionally water-miscible organic solvent,

(a25) at least one crosslinking agent and/or

15 (a26) at least one auxiliary and/or additive (coatings additive);

and

20 (B) at least one aqueous, pigment-free mixing varnish comprising

(b1) at least one water/soluble or -dispersible binder and

25 (b2) water, and also, if desired, comprising

(b3) at least one crosslinking agent and/or

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(b4) at least one auxiliary and/or additive (coatings additive);

and also, if desired, comprising

5 (C) a pigment-free aqueous medium comprising

(c1) at least one rheology control additive; with the proviso that the coatings additives (a15), (a26) and/or (b4) may also comprise at least one rheology control additive (c1).

10 2. A modular system for preparing aqueous coating materials, at least comprising

15 (I) at least one substantially water-free color and/or effect module comprising

(A1) at least one substantially color- and/or effect-imparting base color comprising

20 (a11) at least one optionally water-soluble or -dispersible binder,

(a12) at least one color and and/or [sic] effect pigment, and

25 (a13) at least one optionally water-miscible organic solvent and also, if desired, comprising

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(a14) at least one crosslinking agent
and/or

(a15) at least one auxiliary and/or
5 additive (coatings additive);

(II) at least one aqueous color module
10 comprising

(A2) at least one aqueous color-imparting
15 base color comprising

(a21) at least one water-soluble or
-dispersible binder,

(a22) at least one color pigment,
15 and

(a23) water, and also, if desired,
comprising

20 (a24) at least one optionally water-
miscible organic solvent,

(a25) at least one crosslinking
25 agent and/or

(a26) at least one auxiliary and/or
additive (coatings additive);

and

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(III) at least one aqueous, pigment-free mixing varnish module comprising

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(B) at least one pigment-free mixing varnish comprising

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(b1) at least one water-soluble or -dispersible binder and

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(b2) water, and also, if desired, comprising

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(b3) at least one crosslinking agent and/or

(b4) at least one auxiliary and/or additive (coatings additive);

and also, if desired, comprising

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(IV) at least one pigment-free rheology module comprising

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(C) an aqueous medium comprising

(c1) at least one rheology control additive;

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with the proviso that the coatings additives (a15), (a26) and/or (b4) may also comprise at least one rheology control additive (c1).

5 3. A process for preparing an aqueous coating material with precisely defined shade and optical effect by with [sic] mixing modules differing in material composition and function and stored separately from one another, shortly before the application of the coating material, which comprises mixing with one another at least [sic]

10 (I) at least one substantially water-free color and/or effect module comprising

15 (A1) at least one substantially water-free color- and/or effect-imparting base color comprising

20 (a11) at least one optionally water-soluble or -dispersible binder,

25 (a12) at least one color and/or effect pigment, and

(a13) at least one optionally water-miscible organic solvent and also, if desired, comprising

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(a14) at least one crosslinking agent
and/or

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(a15) at least one auxiliary and/or
additive (coatings additive);

(II) at least one aqueous color module comprising

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(A2) at least one aqueous color-imparting
base color comprising

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(a21) at least one water-soluble or
-dispersible binder,

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(a22) at least one color pigment, and

(a23) water, and also, if desired,
comprising

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(a24) at least one optionally water-
miscible organic solvent,

(a25) at least one crosslinking agent
and/or

(a26) at least one auxiliary and/or
additive (coatings additive);

and

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(III) at least one pigment-free mixing varnish module comprising

5 (B) at least one aqueous, pigment-free mixing varnish comprising

(b1) at least one water-soluble or -dispersible binder and

10 (b2) water, and also, if desired, comprising

(b3) at least one crosslinking agent and/or

15 (b4) at least one auxiliary and/or additive (coatings additive);

20 and also, if desired, comprising

(IV) at least one pigment-free rheology module comprising

25 (C) an aqueous medium comprising

(c1) at least one rheology control additive;

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cont.

with the proviso that the coatings additives (a15), (a26) and/or (b4) may also comprise at least one rheology control additive (c1).

5 4. The aqueous coating material as claimed in claim 1, the modular system as claimed in claim 2 or the process as claimed in claim 3, wherein the base color (A1) imparts effect or both color and effect.

10 5. The modular system as claimed in claim 2 or 4 or the process as claimed in claim 3 or 4, wherein the modular system comprises

15 1. at least one substantially water-free color module (I), at least one aqueous color module (II), and at least one aqueous, pigment-free mixing varnish module (III) or

20 2. at least one substantially water-free color and effect module (I), at least one aqueous color module (II), and at least one aqueous, pigment-free mixing varnish module (III), or

25 3. at least one substantially water-free effect module (I), at least one substantially water-free color module (I), at least one aqueous color module (II), and at least one aqueous, pigment-free mixing varnish module (III).

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6. The coating material as claimed in claim 1 or 4, the modular system as claimed in any of claims 2, 4 and 5, or the process as claimed in any of claims 3 to 5, wherein at least one aqueous, pigment-free mixing varnish (B) comprises at least one rheology control additive as coatings additive (b4).
7. The coating material as claimed in claim 1 or 4, comprising a pigment-free aqueous medium (C), the rheology control additive (c1) being present only in said medium (C).
8. The modular system as claimed in any of claims 2, 4 and 5 or process as claimed in any of claims 3 to 5, wherein the modular system comprises at least one pigment-free rheology module (IV).
9. The aqueous coating material as claimed in any of claims 1, 4, 6 and 7, the modular system as claimed in any of claims 2, 4 to 6 and 8, or the process as claimed in with [sic] any of claims 3 to 6 and 8, wherein the binders (a11), (a21), and (b1) come from the same polymer class.
10. The aqueous coating material, the modular system or the process as claimed in claim 9, wherein the binders (a11), (a21) and (b1) are polyurethane resins.

11. The aqueous coating material as claimed in any of claims 1, 4, 6, 7, 9 and 10, the modular system as claimed in any of claims 2, 4 to 6 and 8 to 10, or the process as claimed in any of claims 3 to 6 and 8 to 10, wherein the binders (a21) and (b1) and also, if desired, the binder (a11) comprise

5 (ii) functional groups which can be converted into anions by neutralizing agents, and/or anionic groups, especially carboxylic acid and/or carboxylate groups.

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12. The use of the aqueous coating material as claimed in any of claims 1, 4, 6, 7, 9 and 10, of the modular system as claimed in any of claims 2, 4 to 6 and 8 to 10, or of the process as claimed in any of claims 3 to 6 and 8 to 10 in automotive OEM finishing, refinish, and the coating of plastics, but especially automotive refinish.

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13. The use of the aqueous coating material as claimed in any of claims 1, 4, 6, 7, 9 and 10, of the modular system as claimed in any of claims 2, 4 to 6 and 8 to 10, or of the process as claimed in any of claims 3 to 6 and 8 to 10 for preparing solid-color topcoats and basecoats, but especially basecoats, for automotive OEM finishing, refinish, and the coating of plastics, but especially automotive refinish.

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14. An automotive OEM coating or automotive refinish, or else a coating on a plastic, producible from aqueous coating materials as set forth in any of claims 1, 4, 6, 7, 9 and 10 and/or using the modular system as claimed in any of claims 2, 4 to 6 and 8 to 10 and/or using the process as claimed in any of claims 3 to 6 and 8 to 10.

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15. An automotive OEM coating or automotive refinish, or else a coating on a plastic, as claimed in claim 14, comprising multicoat color and/or effect coating systems producible in particular by the wet-on-wet technique.

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15 16. An article, especially an automobile body or plastics component, having an automotive OEM finish or automotive refinish and/or a coating on a plastic, as claimed in claim 14 or 15.

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